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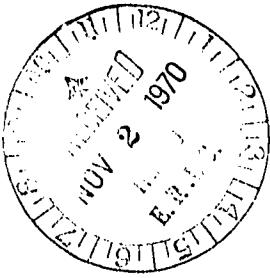
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ABSTRACT

As a planning guide for administrators and public school teachers of elementary school children, this document was developed to assist in planning and implementing outdoor education activities. The document contains objectives, an introduction, contributions of outdoor education to the curriculum, suggested instructional laboratory environments, 32 pages of suggested learning activities, and suggested materials and teacher resources (books, newsletters, journals, and periodicals). Additional sources of materials and information are included. (AL)

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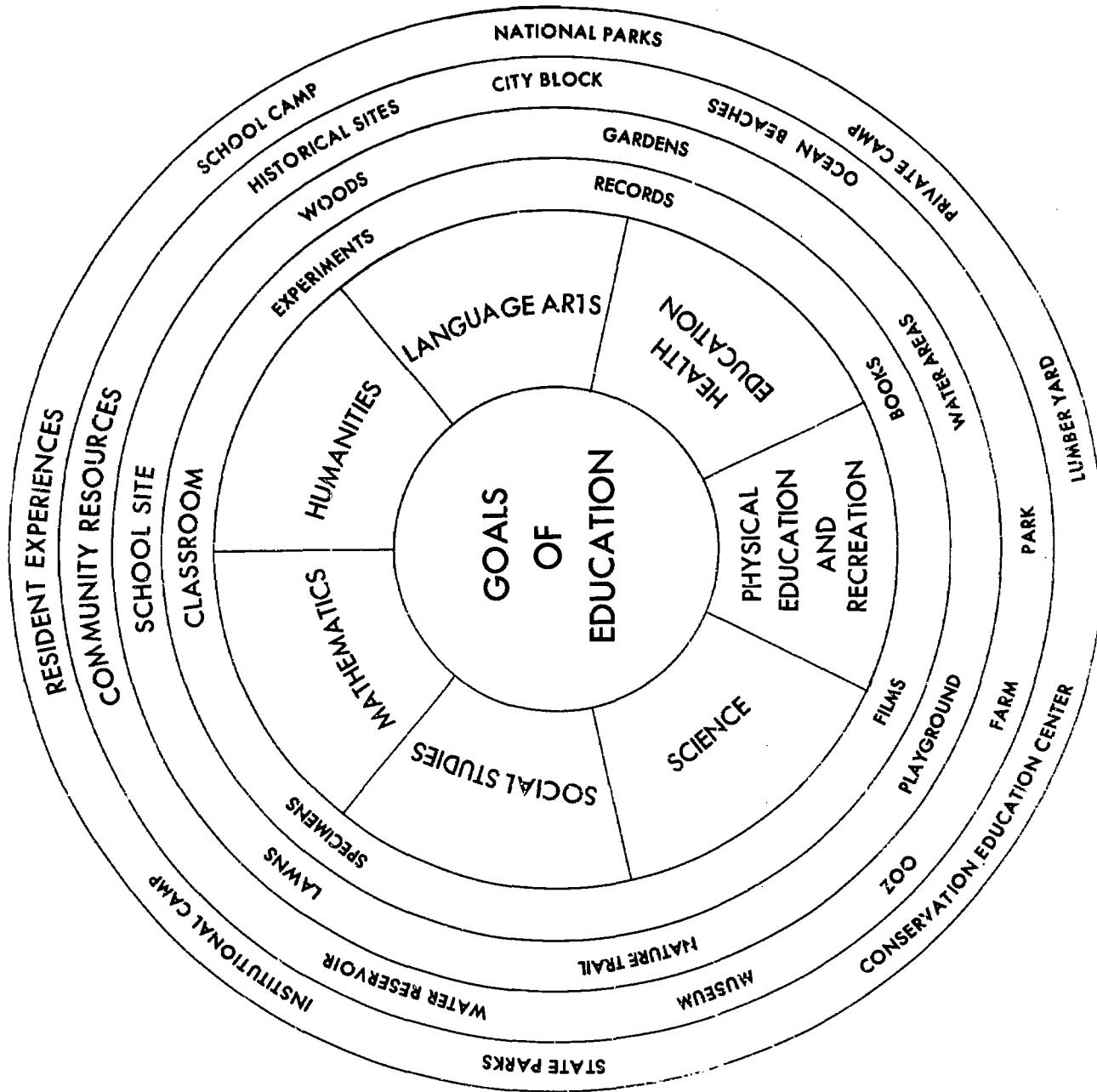
OUTDOOR EDUCATION FOR ELEMENTARY SCHOOLS

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OUTDOOR EDUCATION



There has been considerable and increasing public awareness of our environment and the many factors that adversely effect it. One means of contributing to the solution of these environmental problems is through education and the development in young people of a sensitivity, an understanding, and appreciation of man's relationship to his environment.

This guide has been developed to assist school administrators and teachers in planning and implementing outdoor education experiences for elementary school pupils. While the guide is not an all inclusive treatment of outdoor education, it does attempt to present specific procedures and techniques that may be used by teachers to enrich the elementary school curriculum and make learning more meaningful for children.

The manuscript for this publication was prepared by Dr. Craig C. Chase, Coordinator of Outdoor Education, Yorktown Central Schools. It was reviewed by Ernest M. Coons, Coordinator of Outdoor Education, State University College, Plattsburgh. Revisions were made with respect to the constructive comments suggested.

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OBJECTIVES OF OUTDOOR EDUCATION

Outdoor education experiences serve to attain specific objectives and contribute in varying degrees to the aims of education. Some of the objectives of outdoor education are:

- Understanding the natural environment and man's relationship to it.
- Developing, through direct experiences, the attitudes, values, and behavior necessary for the wise use of natural resources.
- Using the outdoors as a learning laboratory to vitalize and reinforce skills and attitudes developed in the classroom.
- Understanding and practicing democratic and social living.
- Acquiring an understanding of living happily and healthfully in the outdoors.
- Developing outdoor living skills, knowledge, and attitudes for the worthy use of leisure.
- Organizing and implementing pupil-teacher planned experiences based upon sound principles of learning.
- Encouraging creative and critical thinking through experimentation and problem solving.
- Developing the powers of observation as a means of learning through the involvement of all the senses.

INTRODUCTION

The study and utilization of the environment is an integral and essential part of a comprehensive curriculum for elementary school children. In such a curriculum the child studies his immediate surroundings, which include people, places, and things, and becomes more fully acquainted with the concepts, understandings, appreciations, and relationships of man and his environment. One means of providing such educational experiences is through outdoor education. Including such experiences in the school curriculum is the responsibility of the teacher.

THE MEANING OF OUTDOOR EDUCATION

Outdoor education is concerned with direct learning experiences which utilize the natural environment in attempting to achieve the goals of education. It is not a separate discipline, but an essential part of the school curriculum, and provides opportunities to enrich the education of children by extending the classroom beyond four walls in order to use the outdoors as a laboratory for learning.

Outdoor education is an interdisciplinary approach to education and uses the discovery approach to vitalize and enrich subject matter. Many curriculum and social development areas can be taught best in the outdoors and the child is better able to relate such learning to real life situations.

Outdoor education is directly related to the school, community, and life of the child. It involves pupils, teachers, and resource people planning and participating together so that learning is most meaningful in relation to the preparation and followup of the work done in the classroom.

Teaching in, for, and about the outdoors makes it possible for pupils to understand the world in which they live, to develop an understanding of the interrelationships of man and nature, to gain an appreciation of our social heritage, and to contribute to improved human relationships.

THE NEED FOR OUTDOOR EDUCATION

Education must adapt to meet the current needs of man. A number of changes are taking place in society today and these changes should be reflected in the educational curriculum of schools. Some of these developments have made outdoor education extremely important.

- Population increase has resulted in many more people using the resources of the earth.
- Urbanization has reduced or eliminated the opportunity for a number of children and youth to become involved with nature.

- Industrialization has caused individuals to place great emphasis on words and abstractions thereby creating a need for direct learning experiences.
- Automation has increased leisure time, but limited opportunity is available to gain the skills, knowledge, and attitudes required for its worthy use.
- The increased tempo of living in today's society has reduced the meaningfulness of man's work and has reduced his opportunity for creative expression.
- Automation has adversely affected the functioning of the human body, thus creating a need for other ways of developing and maintaining fitness.

CONTRIBUTIONS OF OUTDOOR EDUCATION TO THE SCHOOL CURRICULUM

There are a number of significant contributions which outdoor education makes to the school curriculum. Some of these are:

- Effective Learning. Learning occurs more efficiently and effectively through direct observation and experience. Moving from concrete learning to related abstractions permits greater insight and understanding for pupils.
- Realistic Education. Learning in the outdoors provides realism to the education process through application of the child's senses--seeing, hearing, touching, tasting and smelling. Understanding results from direct involvement, becomes more meaningful, and is retained longer through such a process.
- Concepts for Living. Concepts for living in today's world can be enhanced through direct learning experiences in the outdoors. These contribute to a greater understanding of abstract learning through actual involvement.
- Environmental Sensitivity. Learning beyond the four walls of the classroom develops an awareness of nature and man's relationship to it.
- Life Enrichment. Outdoor learning and living can provide significant contributions to physical and mental health. The acquisition of outdoor skills may meet the leisure time needs of individuals and serve to enrich life.

INSTRUCTIONAL LABORATORIES FOR OUTDOOR EDUCATION

Education beyond four walls is limited only by the imagination and creativeness of the teacher. Beyond the classroom numerous outdoor areas may be used to vitalize the school curriculum. Certain areas

may be located on the school site while others may necessitate field trips to places in the community. The number and type of these instructional laboratories will vary according to the geographic area of the school district. Use of such laboratories may be planned with a specific goal in mind or include a variety of educational objectives.

Some of the educational laboratories on a school site that have possibilities for outdoor education are:

Lawns	Nature Trails	Greenhouse
Woods	Astronomy Observatory	Bird Feeding Stations
Water Areas	Weather Station	Picnic site
Garden Areas	Woodcraft Area	Undisturbed natural areas

The following community resources which may be used for outdoor education are categorized according to curriculum areas.

Health Education

- Hospitals
- Sewage disposal plants
- Water purification plants
- Governmental and voluntary health agencies
- Dairy processing plants
- Restaurants

Humanities: Art, Music, Drama

- Art galleries
- Concerts
- Theatrical productions
- Architectural tours
- Opera and ballet productions
- Motion picture theatres

Language Arts

- Libraries
- Newspaper plants
- Radio stations
- Book publishing companies
- Television stations

- Print shop
- Telephone company

Mathematics

- Computer centers
- Architect offices
- Lumber yards
- Retail stores
- Scientific research centers

Physical Education and Recreation

- Camp sites
- Lakes, rivers, streams, and beaches
- Parks
- Sports facilities and areas
- Winter sports areas
- Sports equipment manufacturing plants

Science

- Farms
- Fish hatcheries
- Nature centers
- Seashores, lakes, rivers, ponds
- Zoos
- Oil refineries
- Saw mills
- Rock quarries
- Planetariums
- City blocks or parks

Social Studies

- Archeological sites
- Museums
- Historical sites
- Government buildings and meetings
- Community services
- Transportation services

RESIDENT OUTDOOR EDUCATION EXPERIENCES

The culmination of outdoor education experiences for children should be the resident program. Resident outdoor education involves teachers and pupils living, working, and learning in the outdoors for a specific number of days and using this environment to make educational activities in the school curriculum more meaningful.

Facilities which may be used for a resident program will vary and school districts may either rent or purchase such facilities. Some school districts use facilities that are available in national and state parks, or conservation education centers, while others will contract with private summer camps or institutional camps.

CONTRIBUTIONS OF RESIDENT OUTDOOR EDUCATION

Resident outdoor education experiences contribute in numerous ways to the education of both pupils and teachers. Some of these values include:

- The opportunity for pupils and teachers to observe each other in a less formal and more relaxed environment.
- An improved pupil-teacher relationship developed through understanding and appreciation.
- The spirit and togetherness that results from teachers and pupils living together and working toward common objectives.
- A comprehensive living experience that permits time for indepth learning.
- The application of problem-solving techniques in learning about true life experiences.

FOLLOWUP AND EVALUATION

If outdoor education is to be of greatest educational value to children, there should be classroom planning prior to such experiences, as well as followup and evaluation procedures.

Planning for outdoor education will vary according to the types of experiences involved. For school site and field trip experiences, planning will be done primarily by teachers and pupils. In a resident program, planning should be a cooperative effort involving teachers, pupils, parents, administrators, and resource personnel. Educational goals and objectives should be identified and these may differ for each grade or school. Parents should be informed about all aspects of the resident program, and if possible, should be given the opportunity to visit the facility before the program begins.

Followup activities give more meaning to teacher-pupil planning and the actual outdoor education experience. They unify all aspects of the program and contribute to the value of the entire experience. The classroom teacher coordinates the total program and, therefore, should give direction to followup procedures. Some activities which may be used to advantage include class discussions, creative writing, musical compositions, art work, bulletin board displays, photographs, models, collections, and living specimens.

Evaluation is an essential part of the education process and should be related to the goals and objectives of the program. Evaluative instruments and techniques that may be employed in evaluating outdoor education experiences include:

- Pupil, parent, and teacher evaluation forms
- Anecdotal records
- Pupil logs
- Personal interviews
- Teacher-made tests
- Sociograms

SUGGESTED LEARNING ACTIVITIES

The following are suggested learning activities that may be used by teachers to incorporate outdoor education experiences into the elementary school curriculum. These learning activities are not intended to be all inclusive, but merely to serve as examples of the many types of outdoor learning experiences that may be used to enrich the curriculum. The activities are organized according to subject area and learning level. However, some of the activities may be related to more than one area of the curriculum.

Reference	Major Understandings and Fundamental Concepts	Suggested Learning Activities	Supplemental Information for Teachers
Humanities Primary Grades Art	Nature provides some art materials that can be used as we find them.	Experiment by rubbing 3 x 5 cards with different rocks, sticks, leaves, berries, and soil. Examine the different color streaks.	Assist pupils in comparing the results of the drawings to the same object drawn when fewer senses were used.
	You must experience something before you can draw it.	Using all or a combination of the five senses, have pupils draw certain objects in nature.	
	Through observation a variety of designs are evident in nature.	Have pupils identify various designs in nature such as round (sun, berry), straight (grass, tree trunk), crooked (edge of a leaf, objects on the horizon).	
	Drawing permits a child to relate to his environment.	Have children draw different things that they might see in a field, a forest, or on the school site.	Follow this activity with a field trip, have the pupils draw some of the things they saw and compare their drawings.
		Make dioramas that show seasonal changes in the environment.	
	Environmental resources may be used artistically in a variety of ways.	Make spatter prints of leaves with a toothbrush.	Place leaf on the paper to be painted. Dip toothbrush in paint. Run thumbnail over brush so that paints spray on the leaf outline.
		Bleach colored paper to show leaf designs by placing in the sun with the leaves on it. Exposure (several hours) will lighten the paper exposed while the covered areas will retain a darker shading.	
		Mount flowers between two layers of contact paper. Type name and mount with the flower. These mounts will retain original color for a long time and can be handled without fear of harming.	Assist children in thinking of questions about individual flowers.
		Using charcoal have pupils sketch natural objects which interest them. Use paper that is somewhat rough in texture.	Show pupils how to outline object with charcoal and shade the picture by rubbing it with their fingers.

Reference	Major Understandings and Fundamental Concepts	Suggested Learning Activities	Supplemental Information for Teachers
Primary Grades Drama	Nature can stimulate a child's creative expression and offer opportunities to share experiences.	<p>Activities of animals and movements of trees and other plants in the wind can be personified. Have the class guess what living thing is being portrayed.</p> <p>Pupils imagine they are people from outer space. Have them dramatize various natural objects they observe when they visit the Earth.</p>	Emphasize that before one can interpret something he must first observe it closely.

Reference	Major Understandings and Fundamental Concepts	Suggested Learning Activities	Supplemental Information for Teachers
Primary Grades Music	Musical activities provide opportunity for creative response by children.	Encourage students to try imitating animal sounds. After some preparation, have each child present his imitation of at least one.	Primary children, because of their lack of learned inhibitions, are very good at this activity.

Reference	Major Understandings and Fundamental Concepts	Suggested Learning Activities	Supplemental Information for Teachers
Primary Grades Health Education	All living things need food and water.	Grow plants from seeds, with and without fertilizer, with and without water, with and without both. Compare the rates of growth and the general health of the plants.	Lima beans produce a rapidly growing plant. Use a clear plastic glass as a container and place the bean in the soil at the edge.
	Animals get their food from plants and from other animals.	Have the class visit a zoo and observe what the different animals eat. Discuss the different kinds of foods that various animals eat.	Use animals which are familiar to the children.
	Water may vary according to its source	Collect samples from as many different water sources as possible, e.g. drinking fountain, stream, fire hydrant, mud puddle, cistern, drainspout, etc. Collect in a clear plastic cup and cover each cup with clear plastic food wrapping. Observe and record clarity, color, visible life, dirt. Allow to stand for several days and observe again.	Children may be surprised at the material present in municipal water. Some life may show up after the sample is aged.
	Pollution of the air may be caused by solids.	Place a wide mouth glass jar filled one-third with water on a corner of a play area. Near the end of the school day look for materials that have settled out of the air.	Discuss air pollution and the sources of these solids in the community.
	Pollution of the air may be caused by a gas.	Place a paper tissue over the exhaust pipe of a car. Let pupils inspect the tissue after one minute.	Carbon monoxide and poison gas is expelled. This gas can cause death because it unites with hemoglobin in the blood thereby displacing oxygen.
	Dentists help to keep teeth healthy.	Arrange a trip to a dentist's office. Allow sufficient time for observation and discussion of the use of various instruments and the role of the dentist in maintaining oral hygiene.	As a followup have children act out their visit to the dentist.

**Major Understandings
and Fundamental Concepts**

Reference **Suggested Learning Activities** **Supplemental Information for Teachers**

Primary Grades Safety signals are important and should be obeyed.
Health Education
(cont'd.)

Determine what additional safety signs are needed.

Supplement this activity by having the adult crossing guide or local traffic policeman speak to the class.

Take the class to a marked, signalized intersection and cross the street correctly. Emphasize the importance of watching for turning cars.

Color is a factor to consider when selecting clothes.

Take a walk around the neighborhood. Identify as many safety signs as possible and discuss them.

Obtain two tin cans tops of the same size. With the same type paint, color one black and the other white. Put outside in a snowbank, being sure that there is an equal amount of snow beneath each. Observe to see which melts out of sight first.

Many people contribute to making the community a safe place to live and work.

Determine what additional safety signs are needed.

This activity can help children to properly select clothing for warm or cool weather. Dark clothes absorb the heat and light clothes reflect the heat.

Have pupils visit a police station, firehouse, telephone company, etc. Ask children to imagine what life would be like if a service of the community were terminated for a week.

Have pupils make a mural showing the workers who provide services for the community.

**Major Understandings
and Fundamental Concepts**

Reference **Suggested Learning Activities** **Supplemental Information for Teachers** —

Primary Grades Language Arts	<p>Learning the names of things through direct experiences gives greater understanding of why objects have names and the importance of names for common understanding.</p> <p>Discussing things that are common to all contributes to better communication and increased vocabulary.</p> <p>Observing, understanding, and organizing are important aspects of the learning process.</p> <p>Using all ones senses develops curiosity, understanding, and appreciation concerning the outdoors.</p>	<p>Take the class on an outdoor experience. Also bring along 3 x 5 cards and a felt tip pen. As new vocabulary is introduced write the single word in large letters for all to see. Pronounce the word and point to the object discussed.</p> <p>Have pupil groups adopt a tree. Pupils observe it a number of times during the school year. Have the class make a chart describing the tree and any changes noted.</p> <p>Have the pupils develop a list of words and phrases that describe a particular natural object. Put the words and phrases into categories such as size, shape, and color.</p> <p>Divide pupils into small groups (4-6). Give each group a 3 x 5 card with a single word or picture on it. This card is a clue that the group uses to progress to another clue.</p> <p>Take a sensory walk with pupils around the school site. Note and describe the smell, feel, sight, and sound of living things encountered. Learning by tasting might be pursued at the teacher's discretion.</p>	<p>Create as many sense impressions of a new word as possible--have students say it, write in soil or snow and see the word as you have written it on the 3 x 5 card.</p> <p>Class might decide on characteristics to be noted before going out.</p> <p>Examples of natural objects that could be used include leaves, flowers, bark, etc.</p> <p>Teacher does not verbalize the clue. Each group must recognize and interpret its clue to progress.</p> <p>If it exists nearby, start by identifying poison ivy.</p> <p>Haiku poems express a simple thought about nature. The first line should contain five syllables; the second, seven; and the third line, five.</p>
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**Major Understandings
and Fundamental Concepts**

Reference **Suggested Learning Activities** **Supplemental Information for Teachers**

Primary Grades Languages Arts (cont'd.) Vocabulary may be increased by means of observing and describing ones environment.

A word building game for pupils is played on the spot when the group is resting. Pupils take turns naming one thing at a time that they can see, from where they are resting, that has not been named before.

Stories, poems, and other language activities permit children to share experiences.

Have pupils write a story or keep a diary of a field trip. After a second visit have pupils write their experiences again and then compare the two.

Each pupil draws a picture of something seen in a natural area. Then tell or write a story about the picture.

Scramble names of plants and animals. When pupil unscrambles word, have him tell a fact about the plant or animal.

Ask pupils to tell why they chose the scene they did.

As group skill increases, try making the game require more skill by naming a particular category to which named objects must belong, e.g. must be green, an animal, found below knee height, etc.

The degree of difficulty of the words used should be in relation to the grade level of the children.

Reference	Major Understandings and Fundamental Concepts	Suggested Learning Activities	Supplemental Information for Teachers
Primary Grades Mathematics	Geometric shapes can be found in the objects of nature.	Have pupils identify and name various geometric shapes in a specific area.	Objects that might suggest geometric shapes include leaves, trees, water areas, buildings, parking lot, etc.
	Distances can be measured in units such as inches, feet, yards, and meters.	Using rulers, yardsticks, and meter sticks, measure specific lengths and distances such as the width of a leaf or the distance between trees.	Discuss which units of measurement would be best to use in specific situations.
	Measurement is as accurate as the instrument used to measure. Counting is exact.	Have pupils pace the distance between the same two trees. Have other pupils measure the distance with a yardstick. Compare their answers and discuss why they differ.	The measurements differ because the same standard is not being used. Excellent charts on the history of measurement are available from the Ford Motor Company, Dearborn, Michigan.
		Using measures made in the classroom, lay out on the playground a square foot, square yard, etc.	Measures may include cardboard, newspapers, magazines, string, etc.
	Maps are a symbolic picture of the landscape.	Obtain a topographical map of the area. Walk with the class to the benchmarks shown on the map. These will indicate their height above sea level.	Topographical maps are available from the United States Geological Survey, Washington, D. C.
		On a field or playground have all pupils actively participate in activities concerned with counting. Such directions as take two steps forward; pick up five leaves; place six sticks in order of size with the smallest first and largest last, can be used.	
		Have pupils conduct a tree census. Count all the trees of each variety that can be seen on the school site or in a selected area of the community.	Concepts of ten's and hundred's can be introduced or reinforced.

Reference	Major Understandings and Fundamental Concepts	Suggested Learning Activities	Supplemental Information for Teachers
Primary Grades Mathematics (cont'd.)	In sunlight and in shaded areas have children compare temperature readings at the same place during different times of the day or on different days. Pupils record temperature readings.	Gather leaves and press them for use on sheets of paper or on a bulletin board to show the meaning of each of the numbers from 1 through 10.	Using natural objects in this manner gives pupils a greater understanding of the meaning of numerals.

**Major Understandings
and Fundamental Concepts**

**Reference
Suggested Learning Activities**

Supplemental Information for Teachers

Primary Grades The use of physical activity as a means of learning contributes to the physical and mental development of the child.

Divide class into two groups and have them form lines facing each other about 50 yards apart. Establish a goal line between the two groups. One team is called true. One team is called false. The teacher makes statements about natural phenomena (e.g., all rabbits eat meat). If the statement is false, false team chases the other team members until they cross their goal line. Those who are caught become members of the false team. If the statement is true, true team chases the false team.

Play "Simon Says" using animal motions. Designed to encourage free expression among pupils.

Some animal movements to use are: duck walk, seal walk, bird flying, snake crawling, elephant walk, snail crawl, inch worm, bunny hop, frog jump, fish swimming, kangaroo hop, bear amble.

Divide pupils into groups. Have pupils collect leaves from different trees. Collect as many leaves from each group as there are groups. Place a pile of leaves a set distance from each group and have the pile contain one leaf from each tree. The teacher calls out the name of a tree and the first child in each group runs to the pile of leaves, locates a leaf from the tree named, and holds it up. For each leaf correctly identified a point is scored for that group. The leaves are returned to the piles and each pupil goes to the end of the group. The same procedure is repeated until each child has a turn.

Divide pupils into groups of 5-6 individuals. Give each group a list of natural objects to be collected during a time period which ends when you give a signal. The first group to return with all the objects on the list wins.

Natural objects might include a maple leaf, dead insect, dust, blade of grass, seed, red leaf, pine needle, etc.

Reference	Major Understandings and Fundamental Concepts	Suggested Learning Activities	Supplemental Information for Teachers
Primary Grades Physical Education and Recreation (cont'd.)		<p>The class is divided into groups. The teacher calls out a specific nature object and one child from each group runs to the object, touches it and returns to his group. Points are scored according to the order of finish. The activity is repeated with a different child from each group participating.</p> <p>Pupils select partners. Each pupil has a small rounded stone and eight or ten small twigs about 3 inches long. Begin with a small stone in front of each player. Players take turns, each placing one twig on top of his own stone. Any twig that falls off the stone is added to the players original pile. The player to pile all of the sticks on the stone first is the winner.</p>	<p>Natural objects such as leaves, trees, acorns, etc. may be used.</p> <p>While visiting a natural area, either on the school site or in the community, have pupils collect stones and different types of twigs that can be used for this activity.</p>

Reference	Major Understandings and Fundamental Concepts	Suggested Learning Activities	Supplemental Information for Teachers
Primary Grades Science	Organisms depend on their environment for the conditions of life.	Construct an aquarium or terrarium for classroom use, using locally gathered plants and animals. Observe the development and balance required in an environment. Pupils will be especially attentive to the living things they gathered.	Discuss what conditions are necessary for living organisms to survive. As pupils ask questions refer them to reference materials nearby.

Reference	Major Understandings and Fundamental Concepts	Suggested Learning Activities	Supplemental Information for Teachers
Primary Grades Science (cont'd.)	Identify a square foot of soil in different areas of the school site. Determine the number and types of different insects. Discuss their similarities and differences.	On a walk through the woods or on the playground have pupils use all their senses to discover things. Have them describe what they saw, heard, felt, smelled, and tasted.	Permit children to taste only those things specified by the teacher.
	Man uses all of his senses to explore the world around him.	Mark the shadow of some object in the fall, again in the winter, and again in the spring. Observe the different positions.	Be sure and mark the shadow at the same time of the day.
	The earth revolves around the sun and receives heat and light from the sun.	Take pupils on a walk around the school yard and discuss the different materials used in the construction of the building and the playground.	
	Trees provide lumber for building. Building materials such as iron, concrete, and glass come mainly from rock formations.		

Reference	Major Understandings and Fundamental Concepts	Suggested Learning Activities	Supplemental Information for Teachers
Primary Grade Social Studies	Neighborhoods play an important part in man's life.	Take pupils on a walk around the neighborhood. Discuss roads, buildings, homes, etc. in the neighborhood. Have pupils construct a neighborhood model of what they saw.	Use materials such as cartons, grass, paper, twigs, etc. in constructing the model.
Pioneers took most of their food from nature.	Farms contribute to the economy of a community.	Visit a farm and discuss its relationship to the economy of the community. Identify crops used on the farm and those used in the city. How does the farm relate to people in the community?	Discuss what pioneers could and could not eat. Make some food products, such as bread or pancakes and discuss the amount of work involved in the preparation of such food.
Community helpers are important for a community to function properly.	It is important to understand our heritage and to preserve it.	Collect some seeds of oats, wheat, blue vervain, or sunflower. Grind between two smooth rocks (similar to Indian grinding stones). Sift the grindings to separate the flour (ground-up seeds) from the bran (seed covers).	Buildings, monuments, parks, etc. can be directly related to important historical events.
Good citizens must feel a personal respect for their environment.	Community services such as a post office, police department, or fire department. Discuss the role that each plays in the community.	Take children to visit places of historical interest in the community. Discuss the settlement of the community and natural resources that contributed to its growth.	Emphasize appearance of the area before and after by means of drawings, photography, etc. Discuss time and cost factors of keeping areas clean.
		Have pupils identify an area of the school site or neighborhood that needs to be cleaned up. As a class project clean up the area. Make a collage of some of the manufactured materials discarded.	

<u>Reference</u>	<u>Major Understandings and Fundamental Concepts</u>	<u>Suggested Learning Activities</u>	<u>Supplemental Information for Teachers</u>
Primary Grades Social Studies (cont'd.)	A bird feeder located near the classroom offers opportunity for bird study both in and out of the classroom.	Make a map of the classroom and then the school building. Take the children outside and help them make a map of their school grounds.	This type of activity makes children more aware of birds, their care, and the contributions they make to their habitat.
	Maps can show a variety of places and things.	Have children bring in road maps and discuss their use. Also have children examine globes.	Use keys to represent different objects such as a circle for a tree and a square for a building.
	Geography involves the study of land forms.	Place a block of ice on a pile of earth. Let the sun melt the ice. Look for channels, moving rocks, water falls, deltas, etc.	Relate the understandings gained from this activity to soil, crops, climate, and industry.
		Explore a water area. Around the edge look for patterns that resemble bays, peninsulas, etc. Discuss why many communities are located near bodies of water.	

**Major Understandings
and Fundamental Concepts**

Reference **Suggested Learning Activities**

			Supplemental Information for Teachers
Humanities Intermediate Grades	There are different kinds of drawing materials that can be used from nature.	On a field trip, have pupils collect such things as stones, grass, dirt, berries, etc. In class, have them use these materials on different surfaces and with various types of finishes.	There are four classifications of drawing materials obtained from nature; media (sticks), tools (mosses), surfaces (cardboard), and finishes (varnish, plastic). When using spray finishes, be sure the room is well ventilated.
Art	There are other ways than painting and drawing to show nature's beauty.	Collect natural materials for a collage. Arrange the materials into a creative design or picture. Paste, glue, or staple the materials on a cardboard background. Lines and colors may be added with crayons, chalk or paint. Clear lacquer can then be applied.	Natural items may include leaves, seeds, feathers, pine cones, soil, twigs, etc.
	Art forms are everywhere in nature and can be used in many different ways.	Pupils collect small waterworn stones of various colors and shapes and arrange them in a design or picture. Pebbles can be arranged in clay with grout, or with adhesive on a cardboard or wood backing.	This type of activity can stimulate interest in a discussion of rocks and their classifications.
	Sculpturing offers opportunity for self-expression and creativity.	Several children work together in collecting snow and creating their object. An animal, a person, a bird, etc. may be portrayed with the snow.	Snow sculpturing is an excellent spur-of-the-moment activity when snow is available.
	Art experiences permit pupils to acquire a sense of perspective.	Take pupils on a field trip and have them observe the apparent size of some object in the distance. Then have them see the different size changes that occur as they come closer to it.	Use a small cardboard frame to enclose the area being sketched at a distance. Then have children use the same frame for sketching part of the same area when they are closer.

Reference	Major Understandings and Fundamental Concepts	Suggested Learning Activities	Supplemental Information for Teachers
Intermediate Grades Drama	Attentive observation is required to dramatize movements or actions.	Act out movements of plants and animals encountered during a class exploration (charades). Let other class members guess the type of living thing.	Using a natural environment makes the actions more realistic. Have the class guess the identity of the occupation.
	Creativity can be developed through dramatic activities.	Dramatize the occupations of various Indian and pioneer workers. Each class member acts out an occupation.	Let pupils choose partners for the imaginary conversations. Have children use their knowledge of the outdoors in their conversations.
		Using mud or natural clay have pupils make simple puppet heads that represent an animal, plant or bird. Use heads as characters in dramatizing outdoor activities.	Have the people convicted make up a conservation pledge and present it to the class.
		Have children dramatize a trial in which people who are guilty of poor conservation practices are tried. Farmers, housing developers, industrialists, etc. may be included.	Have the people convicted make up a conservation pledge and present it to the class.
		Participating as a member of a group helps build confidence and gives one a sense of belonging.	Give all pupils the opportunity to participate in this activity.

Reference	Major Understandings and Fundamental Concepts	Suggested Learning Activities	Supplemental Information for Teachers
Intermediate Grades Health Education	It is important to recognize harmful plants.	Have children inventory plants on the school site to identify harmful plants. Make a bulletin board display and ask pupils from other classes to add to the inventory.	Some harmful plants might be poison ivy, deadly nightshade, ragweed, marsh rooms, nettles, etc.
	Different types of pollution are present in the environment.	Coat glass plates with gasoline and pin with snap clothespins in different locations for the same length of time. Check the plates for air-born pollution.	See if the pollution increases as you come closer to the source (incinerator, factory, highway, etc.).
	Public health workers help to keep people well.	Take pupils on a field trip to community health facilities such as a water purification plant or a sewage disposal plant to find out how it operates and what happens to the refuse as it goes through the plant.	
	Proper care of the teeth is an important factor in dental health.	Cut a 3-inch twig of dogwood or sweet gum. Have a pupil gently chew it. It will soon brush. Shred into long strings which can be used like dental floss.	This is commonly called an Indian toothbrush. Children's interest in this activity will provide the teacher with an opportunity to emphasize the need for good dental health practices.
	Children should understand the purchase and use of drugs and medicine.	Have pupils visit a natural area and study the plants and animals. Then discuss various medicines which are derived from plants and animals.	Have pupils understand the procedures for obtaining a prescription. Point out that only medical doctors and dentists are licensed to prescribe medicines for humans and only registered pharmacists can fill prescriptions.
	A knowledge of the cause of accidents and their prevention helps to reduce the number of accidents.	Have pupils go out to the playground, parking lot, and other areas adjoining the school site and identify safety hazards that could cause accidents.	Assist pupils in setting up a safety patrol. Information is available from the American Automobile Association.

Reference	Major Understandings and Fundamental Concepts	Suggested Learning Activities	Supplemental Information for Teachers
Intermediate Grades Health Education (cont'd.)	A good civil defense program is essential for every community.	Take the class to visit a demonstration shelter in the community. Discuss the importance of preparing for national emergencies and various details involved.	As a followup to this activity children may organize a class committee to interview residents about their preparations for civil defense. Contact local civil defense offices for information and printed materials.
	Knowledge of the relationship between nutrition and health provides a basis for selecting foods that will provide the nutrients people need.	Take the class to visit a farm. Discuss the basic four food groups and their nutritional value. Have the class as a group plan a menu for the school lunch.	The basic four food groups involve milk, bread and cereal, fruit and vegetable, and meat and fish. The school lunch supervisor could be used to assist pupils in their planning.
	Having a knowledge of first aid gives children a feeling of some competency to care for themselves and others.	Have the class walk around the school site. Describe several accident situations that might occur in various places. Discuss with pupils the general first aid procedures that should be followed in each case.	Point out such factors as determining the victim's injuries, what injuries should be dealt with first, securing necessary help, and dealing with external factors like weather.
	Physical activity should be planned as part of one's daily routine.	Have the class visit different recreation areas in the community. Discuss the importance of recreation with respect to physical and mental health.	Health and physical education teachers can be used as resource people and can talk with the class about health and fitness.

Reference	Major Understandings and Fundamental Concepts	Suggested Learning Activities	Supplemental Information for Teachers
Intermediate Grades Language Arts	Children should develop aesthetic values of the outdoors.	<p>Have pupils draw or paint a scene on the school site at different seasons of the year. Have the children discuss or write about each scene or compare the scenes.</p> <p>Have each pupil choose a particular area of nature that provides him with aesthetic beauty. Permit the child to observe the area for an extended period of time. Have him give a report to the class.</p>	<p>Have the pupils send for printed materials that could be used by the class.</p>
	Children should know how resource materials can be used to increase their knowledge.	<p>Following a trip to a natural area take the children to the school library. Help the children to locate resource materials that they could use to answer questions about their visit.</p>	
	Recall is important to determine the effectiveness of learning.	<p>Snap photographic slides as children are working in the out-of-doors. At a later date, set up a tape recorder as the group is shown the slides. Ask individuals to describe what was happening.</p>	<p>After an outdoor experience with students ask them to describe different living things encountered. After listing, have the class select adjectives that they feel are the most appropriate descriptive terms.</p>
			<p>Pupils should impress other individuals with the need for good conservation practices.</p>
			<p>Organize a system of pupil guides to take other classes on nature walks about the school site.</p>
			<p>Have pupils organize an assembly program about the importance of conservation.</p>
			<p>Have pupils make charts, displays, and posters showing good and poor conservation practices.</p>

Reference	Major Understandings and Fundamental Concepts	Suggested Learning Activities	Supplemental Information for Teachers
Intermediate Grades Language Arts (cont'd.)	Information should be organized effectively and correctly.	Pupils serve as "living labels" for a tree or some other object and provide other pupils with information about it when asked.	This activity provides opportunity for oral language experience. Other classes could be taken on a tour with, and stop with, their guide to "hear" each label.
		As a class project develop a printed guide for a school or neighborhood nature trail.	Include in the guide not only statements, but clues and questions as well.
	Informal class discussions can serve as a valuable learning experience.	Following an outdoor education activity have an informal discussion to evaluate the experience. Ask questions such as "What did we do?", "What did we learn?", and "What was most exciting?".	Set up procedures that encourage all children to participate in the discussion.
		Have pupils discuss pollution. In small groups have them go outdoors to observe. When they return, the group should pool their outdoor observations to generalize and arrive at their concept of pollution, types, causes, proofs, and treatment.	Some of the noticeable types of pollution are air, water, sound, thermal, soil, and landscape.
	Individuals see their environment in many different ways.	Have pupils participate in an outdoor experience. Compare how differently each person perceives his environment by having each write or tell about his conception. Share what each one has written.	Use <u>Ranger Rick</u> articles as samples of good writing.

Reference	Major Understandings and Fundamental Concepts	Suggested Learning Activities	Supplementary Information for Teachers
Intermediate Grades Mathematics	The number of elements in a set can be determined by counting.	<p>Obtain a cross section of a large tree being taken down. Determine the age of the tree by counting the number of rings. Plot United States history from the time the tree was small (center rings) until today (outer most ring).</p> <p>Shadows may be used to estimate the height of tall objects.</p>	<p>Rings are formed because of a variance in growth rate at different times of a year. You may wish to establish a time line by having strings run from a growth ring to a white card explaining the significance of that particular year.</p> <p>Assist children in understanding that the height of the tree is the same number of times the height of the child as the trees shadow is of the child's shadow. Discuss the concept of similar triangles and help children in doing the arithmetic.</p>

Reference	Major Understandings and Fundamental Concepts	Suggested Learning Activities	Supplemental Information for Teachers
Intermediate Grades Mathematics (cont'd.)	Use of a compass involves geometric principles dealing with the number of degrees in a circle.	<p>Have pupils hold a compass by its flat base and rotate the metal housing until the degree or direction they want is lined up with the direction of the travel arrow in the base. With compass level turn yourself until the red-tipped compass needle and black outlined arrow are pointing in the same direction.</p> <p>Height and width may be measured through the application of the isosceles right triangle method.</p>	<p>This type of activity is of value in the study of map making. Silva compasses and orienteering guides are available from the Silva Company, Laporte, Indiana.</p> <p>Locate a tree and back away from it until an imaginary line from your eyes to the top of the tree forms a 45 degree angle to a line parallel to the ground from your eyes to the tree. To determine the height of the tree measure the distance from you to the tree by pacing and add this to the height of your eyes from the ground.</p>

Reference Major Understandings and Fundamental Concepts	Suggested Learning Activities	Supplemental Information for Teachers	
Intermediate Grades Music	<p>Responsive singing by groups in the outdoors can be an enjoyable experience.</p> <p>Listening to sounds helps to accustom children to different tones of music.</p> <p>Nature provides resources that can be used for rhythmic activities.</p> <p>Dances offer opportunity for creativity and communication.</p>	<p>Take pupils on a walk and let them listen for sounds of nature. Then have pupils form groups and have responsive singing to selected songs.</p> <p>Have children listen to the different sounds of nature. Which birds make good sopranos? Which birds make good altos? What kind of frog would make a bass?</p> <p>Make rhythm instruments from natural materials found around the school site. Log drums, gourd rattles, grass, acorn and willow whistles, stone rattles, leaf rustlers, scrapers (notched wooden sticks), tambourine (bent branch tied in circle and covered with chamois, bottle caps tied to edges), and ankle-wrist rattles (string bottle caps or bells) are easily made.</p> <p>Have pupils try making up their own square dance. They should choose a melody and sing a story with the dancing directions included in the song.</p>	<p>Cooperative planning by both the teacher and pupils will contribute to the enjoyment of the activity.</p> <p>Some children may be interested in writing a musical composition, either with or without words.</p>

Reference	Major Understandings and Fundamental Concepts	Suggested Learning Activities	Supplemental Information for Teachers
Intermediate Grades	Physical needs, as well as others, can be met through group projects.	Class conservation projects can provide a variety of physical activity for all children. Projects may include shrub planting, soil building, playground renovation, clearing of a waterway, etc.	Pupils should see the relevance of the project and its contribution to the school and community.
Physical Education and Recreation	Physical fitness can be achieved in a variety of ways.	Construct an outdoor obstacle course with objects from nature. Have pupils participate against themselves, rather than against each other.	Some of the obstacles may include crossing over water, running around trees, swinging on a rope, and jumping over logs.
	Man uses his environment for leisure time pursuits.	Have pupils construct a large map of the local parks and recreation areas. Using a key they can identify the various recreational pursuits available. They may also use state maps, labeling state and national parks.	Discuss the importance of recreation and leisure time activities as a means of enriching ones life.
	Children should have first hand experiences in learning about the various aspects of sports.	Take the class on a field trip to visit a stadium, a practice session, a Hall of Fame, etc.	Arrange for the class to take a tour of a sporting goods manufacturing plant.
	Objects from nature may be used for many different purposes.	When snow is available, take pupils snowshoeing on the school grounds. Children enjoy this activity and it contributes to the development of physical fitness.	Discuss the history of snowshoeing. Snowshoes for children are available from Faber and Company, Loretteville, Quebec, Canada.
		On a trip to the woods find a long, sturdy grapevine that can be used for jumping. Two children hold the ends of the grapevine and swing it back and forth. The other children each take a turn at jumping.	Be sure that good conservation practices were followed in obtaining the grapevine. This activity can also be performed with music and rhythmical jumping patterns.

Reference	Major Understandings and Fundamental Concepts	Suggested Learning Activities	Supplemental Information for Teachers
Intermediate Grades Physical Education and Recreation (cont'd.)	Learning can be reinforced through the use of games.	<p>After studying the points of the compass have 8 or 16 players, depending on the number of points of the compass they have learned, stand in a large circle according to the correct name of each point. Another player, "It," stands outside the circle and calls out any direction (west). When he calls the direction, he runs into the circle, picks up a ball and tries to hit with the ball the player whose compass point he called. This player runs from the circle as soon as his point is called and must stop when "It" has the ball in his hand and calls "Stop." All players change points on the compass before the next game.</p> <p>Place about 10 objects of nature that children can identify in a small area on the ground. Permit the children to look at the objects for one minute. Cover up the objects and have each child write what he has seen. The child with the most correct items is the winner.</p> <p>Classroom games may be used to make learning an enjoyable experience.</p>	<p>Use a soft 8-inch or 10-inch playground ball. Give as many children as possible the chance to be "It." Emphasize correct procedures for running, stopping and throwing.</p> <p>The activity can be played with leaves, pictures of flowers or animals, rocks, etc. The number of objects can be increased as the pupils become more observant.</p> <p>Divide the class into groups and have each group make up a list of 10 or 12 things observed during a field trip. When the lists are finished, have each group rewrite the names in jumbled fashion on a different sheet of paper. Have the groups exchange lists and figure them out within a specified period of time.</p> <p>A word such as "bird" might be written "rdbi" and "marsh" could be "rsahm." A similar type of activity could be done as a bulletin board project for other classes to figure out.</p>

Reference	Major Understandings and Fundamental Concepts	Suggested Learning Activities	Supplemental Information for Teachers
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Intermediate Grades Science

Man changes his environment for his own use and these changes are either helpful or harmful.

Take a trip to a natural area and see what changes man has made to benefit living things.

Visit various areas of the community and observe what changes man has made in his environment. Discuss the values and disadvantages of these changes to man and other animals.

Gathering evidence on wildlife can be of value in learning scientific investigation.

Cast the tracks of animals. Class will need half-pint milk cartons, plaster of paris, and water. Put milk carton (with top and bottom cut out) over track, mix some plaster and pour into the container. Allow to dry 15-25 minutes. Pick up the carton and you now have a permanent record of this animal. The cast track also makes an interesting paper weight.

Rocks differ in the manner that they were formed.

Use a clue chart to identify rocks found on the school site, according to pupil given names. Afterwards invite an earth science teacher to classify them according to geologic names.

Weather can be predicted through the use of instruments.

Using thermometers pupils can compare temperature differences in the following areas: snow and ice, sun and shade, deep water and shallow water, surface soil and subsoil, windy area and calm area.

The thinning of trees to allow light to come through and the placement of bird feeders are examples of what pupils may observe.

Develope your own clue chart. It may include some of the following: durability--soft, hard or crumbly; color; crystal shape; components--uniform or a mixture; texture--smooth, rough; density--heavy, light; color changes, grooving, differences in hardness, etc.

Thermometers can be purchased inexpensively at government surplus stores.

**Major Understandings
and Fundamental Concepts**

Reference **Suggested Learning Activities** **Supplemental Information for Teachers**

Intermediate Grades Science (cont'd.)	All organisms are interrelated and interdependent.	Take the class to a field, a pond, and the woods and have them observe how these areas are similar and how they differ.	Compare such things as growth, sound, and soil. Discuss the fact that living organisms are dependent on their environment.
	Clear water may possess many substances not seen by the normal eye.	Have pupils collect water samples from a puddle, stream, pond, river, and the school faucet. Label the samples and take them back to the classroom for study under the microscope.	Discuss water pollution and what should be done to change the situation.
	It is possible to record the path of the sun.	Drive a stake into the ground at an angle equal to the degrees latitude of your region. The stake should point directly north. Starting with the first hour when the sun casts a shadow, mark off, using sticks or stones, the position of the shadow of the stake at each hour and half hour during the day.	Have the pupils obtain information about the latitude of your area.
	The type of surface an object has determines the amount of light that is reflected.	Take outside various flat objects that have different types of surface texture and colors. Put them where they will have the greatest amount of sun reflection. Have pupils stand away from them and observe the light reflection.	The smoothest and lightest objects should be the most reflective.
	A considerable amount of snowfall is necessary to equal a small amount of rainfall.	Let pupils fill a container with snow, place it in a warm place, and let it melt. Afterwards, figure out the number of inches of snow necessary to equal one inch of rainfall.	
	Insects form the largest group of animals.	Take the class on a nature walk to observe how many different types of insects they can see in relation to other animals. Insect collections can demonstrate the variety of insects.	To collect insects you should have a jar, a mesh net, straight pins, a mounting board, and a display board.

<u>Reference</u>	<u>Major Understandings and Fundamental Concepts</u>	<u>Suggested Learning Activities</u>	<u>Supplemental Information for Teachers</u>
Intermediate Grades Science (cont'd.)	All living organisms require nourishment.	Visit a pond and identify organisms that eat smaller organisms as part of a food chain. Have pupils make up a food chain.	Food chains can be made up showing what rabbits eat, birds eat, frogs eat, etc.
	Changes in the environment affect the life and growth of living organisms.	Develop a small pond in an aquarium. Each day have pupils fill it with waste materials. As the pond fills up it ceases to be a pond. Discuss what happens to living organisms.	Relate this activity to ponds that the children know about or have observed on field trips.

Heart rate increases as physical activity increases.	Have each child determine his pulse rate while seated in the classroom. Take the class outside and have them participate in vigorous physical activity. Then have them check their pulse rate again and compare it to the resting rate.	Calculate the average pulse rate for boys, for girls, and for the class.
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Reference Major Understandings and Fundamental Concepts	Suggested Learning Activities	Supplemental Information for Teachers
Intermediate Grades Social Studies	All through history man has tended to settle near water and productive land.	During a visit to a natural area discuss with pupils whether it would have been a good place for early pioneers to settle. Discuss the natural resources that would have made it good and what disadvantages it would have had.
	Knowledge of local history helps people understand their community.	Have pupils visit a local cemetery. Divide into small groups and have them look for the graves of the youngest and oldest person buried there. Determine the average age of people buried there. Using adding machine tape and pencil to obtain rubbings of the gravestone information.
	A knowledge of constructing and reading maps is important in today's world.	Have pupils construct a map of an area of the school grounds, making up a scale and key for the map.
	Museums help one appreciate the sacrifices and successes of our forefathers.	Using a map of the community have pupils locate a well-known place by following specific directions. Then give basic directions to another location from where the pupils are standing.
	The increase in population emphasizes the need for good conservation practices.	Take pupils to visit historical, cultural, and archeological museums that are located in the community.
	Natural products are used by man for industrial purposes.	Have pupils compare a heavily wooded area with an open field. Discuss how man's removal of the timber has affected the birds, rabbits, and mice in the area.
		Excellent charts and diagrams on paper-making are available from the West Virginia Pulp and Paper Company.

Reference	Major Understandings and Fundamental Concepts	Suggested Learning Activities	Supplemental Information for Teachers
Intermediate Grades Social Studies (cont'd.)	<p>In the early settlement of communities man was dependent upon natural resources for survival.</p> <p>Industrial practices have been harmful to both man and his environment.</p>	<p>Study the cross section of different types of trees. Discuss how the lumber from these trees is used by man.</p> <p>Take pupils to a high vantage point overlooking the community. Discuss with them the geographical areas that were settled first. Why?</p> <p>Five pupils visit a stream or river that has been polluted by local industry. Study the cause of the pollution and its effects upon man.</p>	<p>Responses may include water supply, food, view of approaching strangers, industrial site.</p> <p>Discuss procedures that could be taken to eliminate the situation.</p>

Acorns	Glass pares
Audubon teaching charts	Graph paper
Adhesive tape	Hickory nuts or walnuts
Binoculars	Ink
Bird food	Insect jars
Bottles	Jackknives
Boxes	Jars
Cans	Leaves
Carbon tetrachloride	Levels
Cardboard	Litmus paper
Charcoal	Live insect cage
Cloth bags	Labels
Clothespins	Magnifying glasses
Compasses	Maps
Corncobs	Masking tape
Cornhusks	Metal cans
Cornsilk	Metal foil
Cotton	Microscope
Dye	Mirrors
Feathers	Paraffin
Flower pots	Pebbles
Foil pie plates	Pine cones
	Plant press
	Plaster of Paris
	Plastic food wrapping
	Protractor
	Rock hammers
	Rulers
	Sand
	Seeds
	Screen wire
	Sticks
	Stones
	String
	Tape measure
	Thermometers
	Tracing paper
	Tree bark
	Twigs
	Waxpaper
	Weather instruments
	White enamel paint
	White shellac
	Wire

OUTDOOR EDUCATION
TEACHER REFERENCES

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C. F. Letter
The Conservation Foundation
1250 Connecticut Avenue, N. W.
Washington, D. C. 20036

Curious Naturalist
Massachusetts Audubon Society
Lincoln, Massachusetts 01773
Editor: George W. Donaldson
Box 299
Oregon, Illinois 61061

Newsletter for the Exchange of Ideas on Outdoor Education
The Outdoor Education Project
College of Education
Michigan State University
East Lansing, Michigan 48823

Environmental Education
Dembar Educational Services
Box 1605
Madison, Wisconsin 53701
Editor: George W. Donaldson
Box 299
Oregon, Illinois 61061

Outdoor Education Newsletter
State Education Department
Division of Health, Physical
Education and Recreation
Albany, New York 12224

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State Conservation Department
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Ranger Rick Magazine
National Wildlife Federation
1412 16th Street, N. W.
Washington, D. C. 20036

School Bulletin
National Geographic Society
17th and M Street, N. W.
Washington, D. C. 20036

The Outdoor Educator
San Francisco State College
School of Education
1600 Holloway Avenue
San Francisco, California 94132

The Conservationist
State Conservation Department
Division of Conservation Education
Albany, New York 12205

SOURCES OF ADDITIONAL MATERIALS AND INFORMATION

American Association for Health,
Physical Education and Recreation
Project Man's Environment
1201 16th Street, N. W.
Washington, D. C. 20036

High Rock Conservation Center
300 Nevada Avenue
Staten Island, New York 10306

American Association for Health,
Physical Education and Recreation
Council on Outdoor Education and Camping
College of Education
Michigan State University
East Lansing, Michigan 48823

Izaak Walton League of America
1326 Waukegan Road
Glenview, Illinois 60025

National Audubon Society
1130 Fifth Avenue
New York, New York 10028

American Camping Association
Bradford Woods
Martinsville, Indiana 46151

National Geographic Society
1130 Fifth Avenue
New York, New York 10028

American Nature Association
1214 16th Street, N. W.
Washington, D. C. 20036

National Wildlife Federation
16th and M Streets, N. W.
Washington, D. C. 20036

Conservation Foundation
1250 Connecticut Avenue
Washington, D. C. 20036

County Cooperative Extension Services
Roberts Hall
Cornell University
Ithaca, New York 14850

New York State Conservation Department
Albany, New York 12201

Division of Lands and Forests
Division of Fish and Game
Division of Conservation Education
Division of Parks
Division of Motor Boats

New York State Department of Health
Albany, New York 12263

Community Health Services

Division of Air Resources

Division of Pure Waters

Environmental Health Services

New York State Education Department
Albany, New York 12224

Bureau of Elementary School Supervision

Bureau of School Library Services

Curriculum Development Center

Division of Communications

Division of General Education

Division of Health, Physical

Education and Recreation

Museum and Science Service

Office of Science and Technology

Resources for the Future, Inc.
1755 Massachusetts Avenue, N. W.
Washington, D. C. 20036

Sierra Club
250 West 57th Street
New York, New York 10019

United States Department of Agriculture
Soil Conservation Service
Washington, D. C. 20250

United States Department of the Interior
National Park Service
Washington, D. C. 20240

United States Office of Education
Coordinator for Environmental Education
400 Maryland Avenue, S. W.
Washington, D. C. 20202

New York State Natural Beauty Commission
155 Washington Avenue
Albany, New York 12210

New York State Outdoor Education Association
Box 42
Albany, New York 12201

New York State Pure Waters Authority
41 State Street
Albany, New York

THE UNIVERSITY OF THE STATE OF NEW YORK

Regents of the University (with years when terms expire)

1984	Joseph W. McGovern, A.B., LL.B., L.H.D., LL.D., D.C.L.,	New York
1985	Everett J. Penny, B.C.S., D.C.S.,	New York
	Vice Chancellor	
1978	Alexander J. Allan, Jr., LL.D., Litt.D.	White Plains
1973	Charles W. Millard, Jr., A.B., LL.D., L.H.D.	Troy
1972	Carl H. Pforzheimer, Jr., A.B., M.B.A., D.C.S., H.H.D.	Buffalo
1975	Edward M. M. Warburg, B.S., L.H.D.	Purchase
1977	Joseph T. King, LL.B.	New York
1974	Joseph C. Indelicato, M.D.	Queens
1976	Mrs. Helen B. Power, A.B., Litt.D., L.H.D.	Brooklyn
1979	Francis W. McGinley, B.S., LL.B., LL.D.	Rochester
1980	Max J. Rubin, LL.B., L.H.D.	Glens Falls
1971	Kenneth B. Clark, A.B., M.S., Ph.D., Litt.D.	New York
1982	Stephen K. Bailey, A.B., B.A., M.A., Ph.D., LL.D.	Hastings on Hudson
1983	Harold E. Newcomb, B.A.	Syracuse
1981	Theodore M. Black, A.B.	Owego
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